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| 10/663,274      | 09/16/2003  | Ben M. Ishino        | 38190/265282        | 1470             |

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ALSTON & BIRD LLP  
BANK OF AMERICA PLAZA  
101 SOUTH TRYON STREET, SUITE 4000  
CHARLOTTE, NC 28280-4000

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| EXAMINER |
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BURCH, MELODY M

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| ART UNIT | PAPER NUMBER |
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3683

DATE MAILED: 08/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|--------------------------------------|---------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/663,274 | <b>Applicant(s)</b><br>ISHINO, BEN M. |  |
|                              | <b>Examiner</b><br>Melody M. Burch   | <b>Art Unit</b><br>3683               |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 June 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4, 6-16 and 18-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-16 and 18-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 3 and 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. the specification fails to show or disclose how an assembly including an arrangement of linear bearing assemblies configured as claimed and distributed such that they prevent a rotation between the first and second devices about an axis defining the axial direction can simultaneously be independently axially moved first and second to be moved such that the first device is configured to rotate relative to the second device about an axis transverse to the axial direction. Examiner notes that when first element 56 in figure 3 moves axially to axially move the corresponding linear bearing assembly, the linear bearing assembly associated with element 56 opposite first element 56 will also move by virtue of their connection via the top device, therefore, the linear bearing assemblies are not independently moved axially. The first and second devices could not rotate relative to one another about an axis transverse to the axial direction since the linear bearings were recited as being configured to prevent a rotation

between the first and second devices about an axis defining the axial direction. It is noted that only axial movement is enabled with the claimed configuration.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2, 6, 7, 8, 10-14, 18, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6244541 to Hubert in view of US Patent 6523796 to Abramowsky et al.

Re: claims 1-2, 6, 7, 8, 12-14, 18, 19, and 20. Hubert shows in figures 1 and 10 a shock isolation system for reducing a transmission of energy in the form of shocks between first (4,6, 10''') and second (1,2,3,5,11''') devices, the system comprising: at least two linear assemblies 22i,12<sub>1</sub>'12<sub>2</sub>' extending substantially parallel in an axial direction between the first and second devices, the assemblies preventing rotation between the first and second devices about an axis defining the axial direction to the same extent as Applicant, but does not disclose that the linear assemblies are linear bearing assemblies with structures as claimed.

Abramowsky et al. teach in figures 2a-2c and in figure 9 the use of a linear bearing assembly extending substantially parallel in an axial direction between a first 31 and a second 17,25 device, the bearing assembly having a shaft member 29e connected to one of the first and second devices (particularly the second device) and a

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linear bearing shown surrounding element 29e in the area of element 31e connected to the other of the first and second devices, the linear bearing being configured to move axially on the shaft member such that the first and second devices are configured for relative motion therebetween in the axial direction; and a plurality of elastomeric isolators 35e,39e as set forth in the disclosure in col. 10 lines 6-14 configured to be axially loaded by a relative motion between the first and second devices in the axial direction, the isolators thereby being deformed to at least partially reduce the transmission of energy between the devices, wherein at least a pair of the isolators extend circumferentially around the shaft member of the linear bearing as shown. With regards to the rejection of claim 12 also see the rejection of claims 10 and 11 regarding the boost and kill vehicles.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the linear assemblies of Hubert to have included linear bearing assemblies, as taught by Abramowsky et al., in order to provide an alternate and equally effective means of damping movement between the first and second devices.

Examiner notes that Hubert, as modified, results in the limitation of the isolators of each pair of being positioned opposite the linear bearing of a respective one of the bearing assemblies such that at least one of the isolators of each pair is compressed when the linear bearing of the respective bearing assembly moves axially.

Re: claim 10. Hubert shows in figure 1 and discloses in col.1 lines 23-31 the limitation wherein at least one of the first and second devices (particularly the second device 1,2,3,5,11''') is a boost vehicle configured to provide thrust for propulsion.

Re: claim 11. Hubert shows in figure 1 the limitation wherein at least one of the first and second devices (particularly the first device 4,6,10''') is a kill vehicle.

5. Claims 4 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6244541 to Hubert in view of Abramowsky et al. as applied to claims 1 and 12 above, and further in view of US Patent 5884736 to Burdisso et al.

Hubert, as modified, describe the invention substantially as set forth above including the presence of a linear bearing or sleeve shown between shaft member 29e and the surrounding element 31e, but does not include the limitation of the linear bearing having a plurality of balls for rollably contacting the shaft member member.

Burdisso et al. teach in figure 3 the use of a shock isolation system comprising a linear bearing having a plurality of balls shown in the area of the lead arrow of number 303 between a shaft member and a surrounding element.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the linear bearing of Hubert, as modified, to have included balls between the elements 29e and 31e in order to result in an alternate means of providing a low friction interface to facilitate sliding of the shaft member.

6. Claims 9 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6244541 to Hubert in view of Abramowsky et al. as applied to claims 1 and 12 above, and further in view of US Patent 2729443 to Olinger.

Hubert, as modified, describe the invention substantially as set forth above, but does not include the limitation of the linear bearings and isolators being arranged in substantially planar and polygonal configuration.

Olinger shows in figure 4 the use of a shock isolation system comprising linear assemblies arranged in substantially a planar and polygonal configuration.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the arrangement of the linear bearing assemblies of Hubert, as modified, to have been in a substantially planar and polygonal configuration, as taught by Olinger, in order to provide a desired distribution of shock isolation. Examiner also notes that the change in the shape of the arrangement of the linear bearing assemblies is a matter of design choice absent evidence that the particular configuration is significant. In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

#### ***Allowable Subject Matter***

7. Claims 3 and 15 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 1st paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

#### ***Response to Arguments***

8. Applicant's arguments filed 6/16/05 have been fully considered but they are not persuasive. In response to the argument that it would not have been obvious to use the configuration of the mounting assembly of Abramowsky et al. in a device for preventing

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rotation as claimed since the mounting assembly of Abramowsky et al. is directed to a pivot mounting assembly. Examiner observes that it is the pivoting of arm 5 with respect to element 3 that contributes to the device being classified as a pivot mounting assembly, however, it is noted that Examiner uses the teachings of the structure in the area of the linear bearing assembly 30e as shown in figure 9 of Abramowsky et al. wherein the device 31e is connected to device 29e via a bearing member or unnumbered sleeve such that there is no apparent radial gap and moves longitudinally along device 29e while abutting isolators on either longitudinal side of device 31e. It is further noted that the linear bearing configuration of Abramowsky et al. mimicks the configuration of the linear bearing assembly of the instant application in which the device 56 is connected to device 32 via a bearing member 34 such that there is no apparent radial gap and moves longitudinally along device 32 while abutting isolators on either longitudinal side of device 56. The circumferentially distributed linear bearing assemblies of the instant invention having the above mentioned configuration prevent a rotation between the first and second devices about an axis defining the axial direction. In light of the similar configuration, Examiner maintains that modifying the plurality of assemblies 22i, 12<sub>1</sub>' 12<sub>2</sub>' of Hubert, which are circumferentially distributed since the plurality of elements 22i are described as being disposed in holes 13 and 14 which are arranged around the periphery of elements 10 and 11, with linear bearing assemblies having a configuration, as taught by Abramowsky et al., would result in a shock isolation system that functions to prevent a rotation between the first and second devices about an axis defining the axial direction to the same extent as Applicant's system.



In response to the argument that the references, alone or in combination, do not disclose pairs of elastomeric isolators that extend circumferentially around a shaft Examiner directs Applicants attention to figure 9 of Abramowsky et al. in which isolators 35e,39e are shown as extending circumferentially around the shaft member 29e wherein in col. 10 lines 11-14 the isolators are described as rubber blocks or elastomeric isolators.

Finally, in response to the argument that the linear bearing of Burdisso is not used for preventing a rotation and that none of the references "provides a motivation for 'providing a low friction interface to facilitate sliding' in the device of Hubert", Examiner notes that Burdisso is used not for the teaching of preventing a rotation about an axis (as this limitation is already satisfied by Hubert, as modified, by Abramowsky et al.) but to teach the use of balls between a shaft member and an element surrounding the shaft member. Examiner notes that Hubert, as modified, or particularly Abramowsky et al. teach the use of a bearing sleeve between the shaft member and an element surrounding the shaft, but does not disclose that the element is a plurality of balls. Examiner maintains that modifying the bearing sleeve of Hubert, as modified, with a bearing element in the form of a plurality of balls would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an alternate and equally effective means of facilitating the relative sliding motion between the shaft and the element surrounding the shaft.

For the reasons set forth above, the rejections have been maintained.

**Conclusion**

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melody M. Burch whose telephone number is 571-272-7114. The examiner can normally be reached on Monday-Friday (6:30 AM-3:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A. Marmor can be reached on 571-272-7095. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*mmb*

mmb

August 11, 2005

*Melody M. Burch*

*8/11/05*